

Abstract

Disclosed is a diode-pumped solid-state laser having an asymmetrical optical resonator provided with at least two resonator mirrors, inside said resonator being provided at least one thermal lens having an optical refractive power D and having two principal planes respectively and said resonator being definable by the following stability criteria:

$$0 < G_1 \cdot G_2 < 1$$

with $G_1 = 1 - L^*/R_1 - D \cdot d_2$

$$G_2 = 1 - L^*/R_2 - D \cdot d_1$$

and $L^* = d_1 + d_2 - D \cdot d_1 \cdot d_2$

d_1, d_2 the distances of the resonator mirror from the
principal planes of the thermal lens

R_1, R_2 the radii of curvature of the resonator mirrors.

The invention is distinguished by the values d_1, d_2, R_1 and R_2 being selected in such a manner that the following critical refractive powers D_I, D_{II}, D_{III} and D_{IV} , for which

$$D_I = -\frac{1}{R_1 - d_1} - \frac{1}{R_2 - d_2}, \quad D_{II} = \frac{1}{d_2} - \frac{1}{R_1 - d_1}, \quad D_{III} = \frac{1}{d_1} - \frac{1}{R_2 - d_2}, \quad D_{IV} = \frac{1}{d_1} + \frac{1}{d_2}$$

applies, the following equations are fulfilled:

$$D_{II} - D_I = D_{IV} - D_{III} \geq 8 \text{ dptr.}$$

$$|D_{III} - D_{II}| \geq 2 \text{ dptr.}$$